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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/767,854	01/30/2004	Soon Hyung Hong	2236.0070000/JUK/SMW	2978
26111, 7590 02/11/2008 STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C. 1100 NEW YORK AVENUE, N.W. WASHINGTON, DC 20005			EXAMINER NGAMPA, BRIGET P	
			ART UNIT 1792	PAPER NUMBER
			MAIL DATE 02/11/2008	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/767,854

Applicant(s)

HONG ET AL.

Examiner

BRIGET P. NGAMPA

Art Unit

1792

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 25 October 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1 and 4-6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 4-6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>10/14/2004</u>  | 6) <input type="checkbox"/> Other: _____                          |

### Detailed Action

1. Claims 7 and 8 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected group (because it pertain to a product) It would have been obvious to one of ordinary skill in the art at the time of the invention to have, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on July 25, 2007. Examiner acknowledged the cancellation of claims 2 and 3.

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 and 4, 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Galasso et al. (patent number 4,425,407, hereafter '407) in view of Booth et al. (Patent number 5,330,789, hereinafter '789) and in view of Holko (U.S. Patent number 5,021,107, hereafter '107).

3. With respect to claims 1 and 4, 6 '407 teach a method of making an oxidation protective multiple coating for a carbon/carbon composite [col 2, lines 56-58], the method comprising:  
(a) forming an initial coating layer [col 2, lines 67-68] on the carbon/carbon composite by a pack cementation process [col 2, lines 64-67]; which develop a thin layer of SiC on the surface.  
Further, the pack produces vapor of silicon and /or decomposable silicon compounds [col3, lines

Art Unit: 1792

1-3]. After the silicon carbide coating is applied, other coating such as Si powder can be applied [col 3, lines 53-57];

'407 also teaches step (b) and (c) that the carbon-carbon article may be embedded in powder mixture containing silicon and pack then the article is heated to about 1600°C [col 3, lines 2-6] during which time a silicon carbide conversion layer is produced [col 3, lines 6-8].

'407 does not teach (b) that the powder is applied by spraying on a volatile liquid forming an extra silicon layer after the silicon carbide has been formed; in addition '407 does not teach part of step (c) producing Si-SiC layer, nor step (d) oxidizing Si in the Si-SiC layer;

'789 teach step (c) and step (d) in a composition which provide a protective coating on carbon substrate and the composition comprise contacting a surface of the carbon substrate with silicon particulate and silicon carbide then heating to a suitable temperature [col 2, lines 65-69-col 3, lines 1-2]. '789 further teach that the formation of SiO<sub>2</sub> to protect the SiC layer and the carbon substrate occur at 900°F [col 4, lines 56-68]. It would have been obvious to one of ordinary skill in the art at the time of the invention to have used the method of '789 to add a protective coating on the method of '407 because '789 teach that SiO<sub>2</sub> is known in the industry to be an excellent oxygen diffusion barrier

With respect to step (b):

'107 teach the volatile carrier such as alcohol [col 5, lines 18-19] are used in applying powders of interlayer materials which may be Si [col 3, lines 61-64]. It would have been obvious to one of ordinary skill in the art at the time of the invention to have used alcohol as a vehicle for coating the Si powder to the coated carbon/carbon composite with reasonable expectation of success because '107 teaches that it is a suitable method.

4. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Galasso et al. (patent number 4,425,407, hereafter '407) in view of Booth et al. (Patent number 5,330,789, hereinafter '789) and in view of Holko (U.S. Patent number 5,021,107, hereafter '107) and further in view of Hanzawa et al (Pg Publication number 2001/0051258, hereafter '258).

With respect to claim 5, '407, '789 and '107 teach the limitations of claim 1; '258 further teach temperature of 1100°C-1400°C and a pressure of 0.1-10hPa [0068, lines 3-4] which correspond to 75 mTorr-7500 mTorr. It has been held that a prima facie case of obviousness exist where the claimed range "overlap or lie inside ranges disclosed by the prior art". Therefore, It would have been obvious to one of ordinary skill in the art at the time of the invention to have considered a prima facie case of obviousness because there is overlapping in ranges between the claimed range and the prior art. [In re Wertheim, 541 F.2d257, 191 USPQ 90 (CCPA 1976).

### ***Double patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321 (d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement. Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1 and 4-6 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1 and 4-6 of copending Application No. 10/767,858 (hereafter '854) in view of Galasso et al. (Patent number 4,425,407, hereafter '407). '854 claims all the features of the current claims except forming an initial coating layer by pack cementation process. '407 teaches forming an initial coating layer [col 2, lines 67-68] on the carbon/carbon composite by a pack cementation process [col 2, lines 64-67] to improve adhesion. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have formed an initial coating layer by pack cementation on the process of '854 because '407 teaches that it is a suitable process for a better adhesion.

This is a provisional obviousness-type double patenting rejection.

The request by applicant to hold in abeyance the double patenting rejection has been denied because applicant has not asserted reasoning why the rejection are not proper.

### ***Response to Arguments***

5. Applicant's arguments, see pages 6-8 in view of amendment and arguments to oxidation, filed October 25, 2007, with respect to the rejection of claim 1 under 35 U.S.C. 103(a) have been fully considered and are persuasive. Therefore, the previous rejection has been withdrawn.

However, upon further consideration, a new ground(s) of rejection is made in view of Booth (patent number 5,330,789).

*Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Briget P. Ngampa whose telephone number is 571-270-1866. The examiner can normally be reached on M-F, 830-4:30PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Cleveland can be reached on 571-272-1418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

bpn

  
MICHAEL CLEVELAND  
SUPERVISORY PATENT EXAMINER